

Shizu KUZUHA*: **Two new species of aquatic Hyphomycetes**

葛葉 静*: 水生不完全菌類の 2 新種

Campylospora parvula Kuzuha, sp. nov.

Fungus aquaticus submersus; mycelio hyalino, septato, ramoso. Conidiophora simplicia vel raro ramosa, hyalina, 20-230 μ longa, 1.6-2.7 μ lata. Conidia (aleurioconidia) terminalia, solitaria, hyalina, ex uno corpore principali et quattuor ramulis constantia; corpore principali unciformi, quadricellulari, 9.5-13.5 \times 10-14.5 μ ; dimidio distali plus minusve ellipsoideo, transverse uniseptato, 9-12 \times 4-6.5 μ ; dimidio proximali aliquanto triangulato, longistrorsum uniseptato, 9.5-13.5 \times 6-9 μ ; ramulis 7-14.5 μ longis, basi 2.9-5.1 μ latis, apicem versus ad 0.4-0.8 μ attenuatis.

Hab. in folio putrescenti dicotyledoneae plantae in flumine submerso, Nishitama, Tokyo (October 5, 1969). Holotypus in TNS.

The mycelial hyphae on LCA¹⁾ were hyaline, branched, septate and 0.7-5.4 μ in diameter. Conidium formation did not take place on this agar medium, but conidiophores and conidia were produced within several days after a slice of the colony had been transferred into water. When such common media as malt agar and yeast extract—glucose agar were used for culture, spore production occurred neither on the agar plates nor in water. The conidiophores were simple or rarely branched, hyaline, 20-230 μ long and 1.6-2.7 μ wide, each bearing a single conidium terminally. The conidium started its development as an apical swelling of the conidiophore, which, cut off by a septum from its parental conidiophore, became a spore primordium. Apically growing, this primordium suddenly turned its way backward. So, at this stage, the primordium was reminiscent of the hook of the ascigenous hypha. Soon after the second septum was deposited lengthways near the center of it, another growing point appeared in the proximal cell on the opposite side of this septum. From this time, the proximal cell began to grow laterally and became triangular, while the distal cell continued the apical growth and became ellipsoidal. In due

* Bot. Inst., Fac. Sci., Tokyo Kyoiku Univ., Otsuka, Tokyo. 東京教育大学理学部植物学教室.

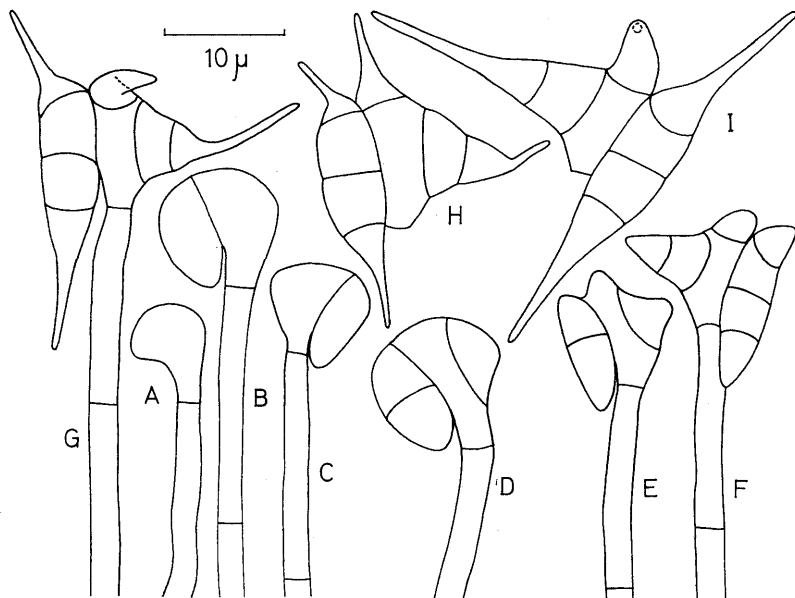


Fig. 1. *Campylospora parvula*. A-G. Conidia in different stages of development. H-I. Mature conidia.

course of time, septation took place again near the middle of each cell, forming a four-celled main body. The septum in the distal half was transversal, while that in the proximal half was longitudinal. Then a blunt process arose from the free end of each cell. The process was before long delimited from the main body by a septum, and a slender elongation developed from its apex. When these four appendages got fully grown, the conidium was liberated from the conidiophore. The mature conidia were hyaline and consisted of a main body and four branchlets. The main body was hook-shaped, four-celled and $9.5-13.5 \times 10-14.5 \mu$ in size. The distal half was more or less ellipsoidal, transversely uniseptate and $9-12 \times 4-6.5 \mu$. The proximal half was somewhat triangular, longitudinally uniseptate and $9.5-13.5 \times 6-9 \mu$. These two portions were usually not in the same plane. The branchlets were $7-14.5 \mu$ long, $2.9-5.1 \mu$ wide at the base and abruptly tapered to $0.4-0.8 \mu$.

Campylospora is a monotypic genus established by Ranzoni in 1953 on

the type of *C. chaetocladia*²⁾. But presence of three distinct spore-types has been known since Ingold's study on the stream-spores of Nigeria (1959)³⁾. In form and size, the conidia of this fungus show a close resemblance to his third type (Fig. 1.C.) which was first reported by Ingold & Ellis (1952, Fig. 1.g.)⁴⁾ from Wheatfen, England. This species is easily distinguishable from the type species in having by far shorter and finer appendages.

***Tricladium caudatum* Kuzuha, sp. nov.**

Fungus aquaticus submersus; mycelio hyalino, septato, ramoso. Conidiophora plerumque simplicia, hyalina, 25-120 μ longa, 1.5-3.0 μ lata. Conidia (aleurioconidia) terminalia, solitaria, ramosa, multicellularia, hyalina, ex uno axe principali, duobus ramis lateralibus et una appendice basali constantia; axe principali 2-9 septato, 53-92 μ longo, 3.2-4.7 μ lato, iisdem locis e quibus rami laterales oriuntur obtuse angulato; duobus ramis lateralibus e locis 10-18 μ separatis orientibus, 2.7-4.3 μ latis, apicem ad 1.1-1.9 μ attenuatis, basi non constrictis; ramo inferiore 1-5 septato, 22-50 μ longo; ramo superiore 0-4 septato, 15-39 μ longo; appendice basali 0-2 septata, 7-34 μ longa, 1.8-3.7 μ lata, basi non constricta.

Fungus e conidiis in spumis fluminis, Bukoh, Saitama, inventis obtentus (October 31, 1969). Holotypus in TNS.

In the scum sample collected from a small stream in Mt. Bukoh, Saitama Pref. in October, 1969, the writer found curious conidia apparently belonging to an undescribed species of *Tricladium*. Some monospore-cultures were made on malt agar with the aid of a capillary pipette. Spore production did not occur on this agar medium. But when a strip of the colony was submerged in water, conidiophores and conidia were formed in abundance within a couple of days.

The mycelial hyphae were hyaline, branched, septate and 0.4-3.6 μ in diameter. The conidiophores were hyaline, usually simple with a terminal solitary conidium, 25-120 μ long and 1.5-3.0 μ wide. Spore formation began with a gradual swelling of the distal end of conidiophore. This swelling was before long partitioned as a clavate spore primordium. Continuing the apical elongation, the primordium became 2-celled and began to stretch out a lateral branch below the septum. The second septum was deposited 10-18 μ above the prior one and another lateral branch appeared just below the second septum. At the latest stage of conidium ontogeny, a basal append-

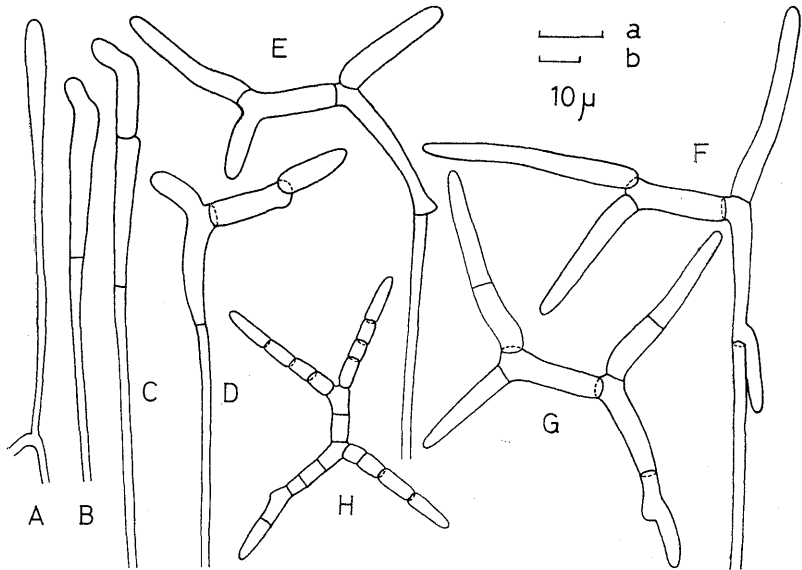


Fig. 2. *Tricladium caudatum*. A-F. Conidia in different stages of development. G-H. Mature conidia. (Scale b for H).

age extended downwards nearly in parallel with the conidiophore. The conidium was shed by disarticulation of the basal septum. Some new septa were formed after detachment of the conidium and finally the conidium became 4-19-celled with only a slight constriction at each septum. The mature conidia were hyaline and composed of a main axis, two lateral branches and a basal appendage. The main axis was 2-9 times septate, 53-92 μ long, 3.2-4.7 μ wide and usually bent to an obtuse angle at the points of origin of the lateral branches. The lower branch was 1-5 times septate and 22-50 μ long; the upper one was 0-4 times septate and 15-39 μ long. They were 2.7-4.3 μ in width and gradually tapered to 1.1-1.9 μ at the tip. These two laterals were rarely included in the same plane. The basal appendage was non to twice septate, 7-34 μ long and 1.8-3.7 μ wide. The lateral branches and appendage were not constricted at the point of attachment to the main axis.

Up to the present, about ten species have been described in the genus *Tricladium*. Among them the only one species, *T. giganteum* Iqbal⁶⁾, is

known to possess occasionally a basal appendage. Though my fungus resembles it to some extent in this conspicuous character, there are distinct differences between the two: 1) in *T. giganteum*, two lateral branches arise mostly from the same level, while in my fungus they are formed at different levels of the main axis; 2) the conidia of the former species are much larger than those of the latter. In form and size, my fungus looks rather similar to *T. angulatum* Ingold⁶⁾. However, they are clearly distinguished from each other in the following respects. First, the conidia of my fungus always have a basal appendage, which is completely lacking in *T. angulatum*. Secondly, the conidia of the former are solitary, while in the latter 2-3 conidia in different stages of development are often seen on the expanded tip of conidiophore. Therefore, it seems better to establish a new species for my fungus.

My hearty thanks are due to Prof. Emeritus H. Indoh for his valuable advices. I am also indebted to Dr. Y. Kobayasi, National Science Museum, for his kindness in reading the manuscript.

References

- 1) Miura, K. & M. Y. Kudo. 1970. Trans. Mycol. Soc. Japan 11: 116-118.
 2) Ranzoni, F. V. 1953. Farlowia 4: 371-373. 3) Ingold, C. T. 1959. Trans. Brit. Mycol. Soc. 42: 479-480. 4) — & E. A. Ellis 1952. Ibid. 35: 158-159. 5) Iqbal, S. H. 1971. Ibid. 56: 347-349. 6) Ingold, C. T. 1942. Ibid. 25: 389-393.

* * * *

次の2種の菌類を新種として記載・報告する。1) *Campylospora parvula* (水生菌, 不完全菌類)。本種は, 分生子の枝から伸びる4本の付属突起が, type species に比べ, はるかに短く, しかも細いことを特徴とする。*Campylospora* は monotypic genus であるが, Ingold (1959) は *Nigeria* の stream-spore に関する研究の中で, 3種類の異型の胞子を記録している。本種の分生子は, 彼のいう第3型に非常によく似ている。2) *Tricladium caudatum* (水生菌, 不完全菌類)。本種は, 分生子の個体発生の最終段階で, 主軸の基部に, 常に1本の付属枝を生じる点で, 他種とは容易に区別される。